

# NGUYEN Quang-Duy



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## Education

2017 – 2020 **PhD in Computer Science**

École Doctorale des Sciences Pour l'Ingénieur, University Clermont-Auvergne, France  
UR TSCF, MathNUM département, INRAE (Irstea), Clermont-Ferrand, France

*PhD defense : 16/07/2020*

2014 – 2015 **Master 2 in Networks**

University Claude Bernard Lyon I, France

*Note : 15.31/20.00 - Rank : 1/60*

2013 – 2014 **Master 1 in Computer Science**

Institut de la Francophonie pour l'Informatique (IFI), Hanoi, Vietnam

*Note : 14.20/20.00*

2007 – 2012 **Engineer of Information Technology in Computer Engineering**

Hanoi University of Science and Technology, Vietnam

*Note : 14.96/20.00*

## Experience

12/2021 – present **Postdoctoral Researcher**

LSEA laboratory, DILS department, CEA List, Palaiseau, France

*Project : Tools and Methods for System Complex Engineering in Industrie 4.0*

*Keywords : I4.0, LocalSEA testbed, OPC UA, TurtleBot3, Niryo Ned, ROS*

10/2020 – 09/2021 **Postdoctoral Researcher**

LTCI laboratory, INFRES department, Télécom Paris, Palaiseau

*Project : OPC UA PubSub for Caméléon*

*Keywords : IIoT, SNCF, OPC UA PubSub, Embedded System, Zephyr OS, Node-RED, C*

01/2017 – 07/2020 **PhD Student**

UR TSCF, MathNUM département, INRAE

*Project : ConnecSens, AgroTechnoPôle*

*Keywords : Agriculture, IoT, Ontology, Reasoning, OWL, SWRL, Java, Python*

08/2016 – 10/2016 **Research Engineer**

Programmation, Networks and Systems team, LaBRI laboratory, Bordeaux, France

*Project : Le Palais de la Mémoire*

*Keywords : Sounds, Method of Loci, Distributed Algorithms, Beacons, BLE, Android*

04/2015 – 07/2016 **Master 2 Intern / Research Engineer**

Networks team, ICube laboratory, Strasbourg, France

*Project : FIT/IoT-lab*

*Keywords : Multihoming, Mobility, Contiki, TelosB, Python, C/C++*

01/2014 – 07/2014 **Master 1 Intern**

Institut de la Francophonie pour l'Informatique

*Project : Modeling and Diffusion of Mobile Users Profile*

*Keywords : Participative Detection, Modeling, Android, GAMA Platform, GAML*

## Publications\*

[W.2] **Quang-Duy Nguyen**, Saadia Dhouib, and Patrick Bellot, "A Unified Method to Design Bridges for OPC UA PubSub Networks in the Industrial IoT", Proceedings of the 27th IEEE International Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD 2022), Paris, France, 11/2022

[CI.6] **Quang-Duy Nguyen**, Saadia Dhouib, Kunal Suri, and Fadwa Tmar, "From Requirement Specification to OPC UA Information Model Design : A Product Assembly Line Monitoring Case Study", Proceedings of the 20th IEEE International Conference on Industrial Informatics (INDIN 2022), Perth, Australia, 07/2022

[CI.5] **Quang-Duy Nguyen**, Patrick Bellot, and Pierre-Yves Petton, "An OPC UA PubSub Implementation Approach for Memory-Constrained Sensor Devices", Proceedings of the 31st IEEE International Symposium on Industrial Electronics (ISIE 2022), Anchorage, United States, 06/2022

[CI.4] **Quang-Duy Nguyen**, Fadwa Tmar, Yining Huang, and Saadia Dhouib, "Early Lessons Learned from the Development of a Local OPC UA-based Robotic Testbed for Research", Proceedings of the 31st IEEE International Symposium on Industrial Electronics (ISIE 2022), Anchorage, 06/2022

[CI.3] **Quang-Duy Nguyen**, Saadia Dhouib, Jean-Pierre Chanet, and Patrick Bellot, "Towards a Web-of-Things Approach for OPC UA Field Device Discovery in the Industrial IoT", Proceedings of the 18th IEEE International Workshop on Factory Communication Systems (WFCS 2022), Pavia, Italy, 04/2022

[CI.2] **Quang-Duy Nguyen**, Catherine Roussey, Patrick Bellot, and Jean-Pierre Chanet, "Stack of Services for Context-Aware Systems : An Internet-Of-Things System Design Approach", Proceedings of the 15th IEEE International Conference on Computing and Communication Technologies (RIVF 2021), Hanoi, 08/2021

[JI.2] Julian Eduardo Plazas, Sandro Bimonte, Christophe de Vault, Michel Schneider, **Quang-Duy Nguyen**, Jean-Pierre Chanet, Hongling Shi, Kun Mean Hou, and Juan Carlos Corrales, "A Conceptual Data Model and its Automatic Implementation for IoT-Based BI Applications : UML Profile and MDA Approach", IEEE Internet of Things Journal, 10/2020

[T.1] **Quang-Duy Nguyen**, "Interoperability and Upgradability Improvement for Context-Aware Systems in Agriculture 4.0", PhD thesis, University Clermont-Auvergne, France, 07/2020

[CF.2] **Quang-Duy Nguyen**, Catherine Roussey, Maria Poveda-Villalón, Christophe de Vault, Jean-Pierre Chanet, and Camille Noûs, "CASO et IRRIG deux ontologies pour le développement de systèmes contextuels : cas d'usage sur l'automatisation de l'irrigation", Actes des 31es journées francophones d'Ingénierie des Connaissances (IC 2020), Angers, France, 07/2020

[JI.1] **Quang-Duy Nguyen**, Catherine Roussey, Maria Poveda-Villalón, Christophe de Vault, and Jean-Pierre Chanet, "Development Experience of a Context-Aware System for Smart Irrigation using CASO and IRRIG ontologies", Special Issue "Semantic Technologies Applied to Agriculture", MDPI Applied Sciences, 03/2020.

[W.1] Maria Poveda-Villalón, **Quang-Duy Nguyen**, Catherine Roussey, Christophe de Vault, and Jean-Pierre Chanet, "Ontological Requirement Specification for Smart Irrigation Systems : A SOSA/SSN and SAREF Comparison", Proceedings of the 9th International Semantic Sensor Networks Workshop, 17th International Semantic Web Conference (ISWC 2018), Monterey, United States, 10/2018

[CF.1] Maria Poveda-Villalón, **Quang-Duy Nguyen**, Catherine Roussey, Christophe de Vault, and Jean-Pierre Chanet, "Besoins ontologiques d'un système d'irrigation intelligent : Comparaison entre SSN et SAREF", Actes des 29es journées francophones d'Ingénierie des Connaissances (IC 2018), Nancy, France, 07/2020

[CI.1] **Quang-Duy Nguyen**, Julien Montavont, Nicolas Montavont, and Thomas Noël, "RPL Border Router Redundancy in the Internet of Things", Proceedings of the 15th International Conference on Ad-Hoc Networks and Wireless (ADHOC-NOW 2016), Lille, France, 07/2016

### Summary

First-authored items : 10/13  
Citations : 39  
H-index : 4  
I-index : 2  
Items by domains of interest :  
I4.0 (4), OPC UA (5), IoT (7),  
WSN (4), Ontology (5)  
Source: Google Scholar

## Research Skills

Project Management	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
System Implementation	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Scientific Writing	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Presentation	■ ■ ■ ■ ■ ■ ■ ■ ■ ■

## Linguistic

French	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
English	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Vietnamese	■ ■ ■ ■ ■ ■ ■ ■ ■ ■

## Technical Skills

Methodology	Mini-Waterfall, LOT, Agile
Operating System	Linux, Zephyr, Contiki, Android
Network Protocol	TCP/IP, OPC UA PubSub, MQTT
Vocabulary	SOSA/SSN, CASO, IRRIG, AAS
Standard	IEC62541, ISA-95, Sparkplug B
Tool	Protégé, Wireshark, GIT, Latex

## Programming

C/C++	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Java	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Python	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Shell script	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Query language	■ ■ ■ ■ ■ ■ ■ ■ ■ ■

## References

- **Dr. Saadia DHOUB**, Senior researcher and project manager in LSEA, DILS department, CEA List  
*Direct supervisor in the project "Tools and Methods for System Complex Engineering in Industrie 4.0"*  
✉ saadia.dhouib@cea.fr
- **Prof. Patrick BELLOT**, Director of the CCN team of LTCl, INFRES department, Télécom Paris  
*Direct supervisor in the project "OPC UA PubSub for Caméléon"*  
✉ patrick.bellot@telecom-paris.fr
- **Dr. Jean-Pierre CHANET**, Director of UR TSCF, MathNUM department, INRAE  
*Director of the thesis "Interoperability and Upgradability Improvement for Context-Aware Systems in Agriculture 4.0"*  
✉ jean-pierre.chanet@inrae.fr